

RECLAMATION

Managing Water in the West

Drought Workshop

Oklahoma-Texas Area Office

November 6, 2012

Collins Balcombe

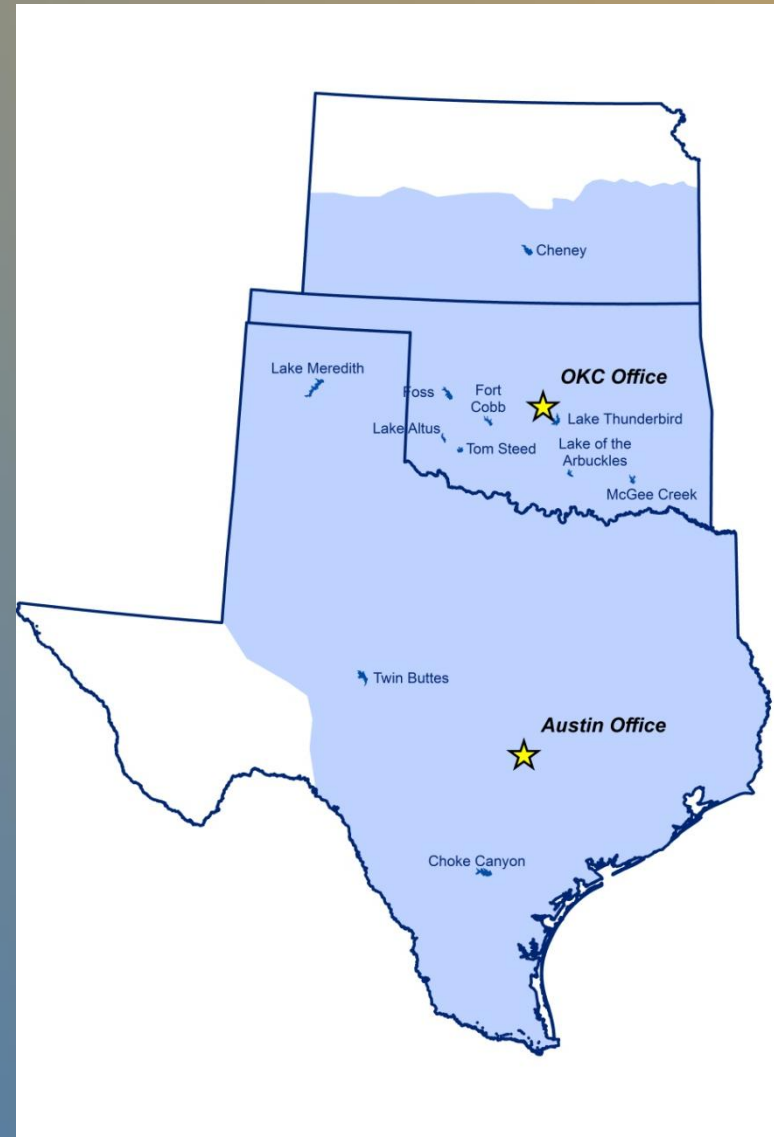
Supervisory Program Coordinator



U.S. Department of the Interior
Bureau of Reclamation

OTAO Overview

- 11 reservoirs with a total capacity of 4.2 million acre-feet
- 571,000 acre-ft/yr to about 2.7 million M&I customers
- 110,600 acre-ft/yr for about 63,000 irrigated acres
- Facilities are transferred works
- 11 State Parks
- 8 Wildlife Management Areas
- 2 National Recreation Areas
- 1 National Wildlife Refuge
- 8 million visitor-days each year

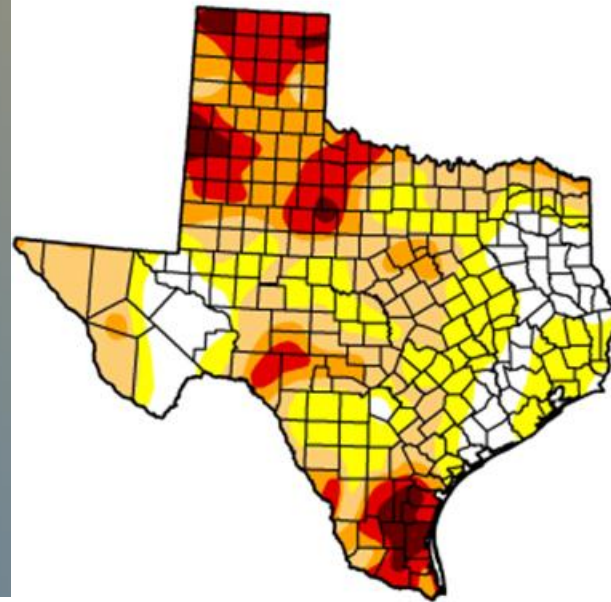


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TEXAS

How full?

- Choke Canyon – 51%
- Lake Meredith – 0%
- Twin Buttes – 1%



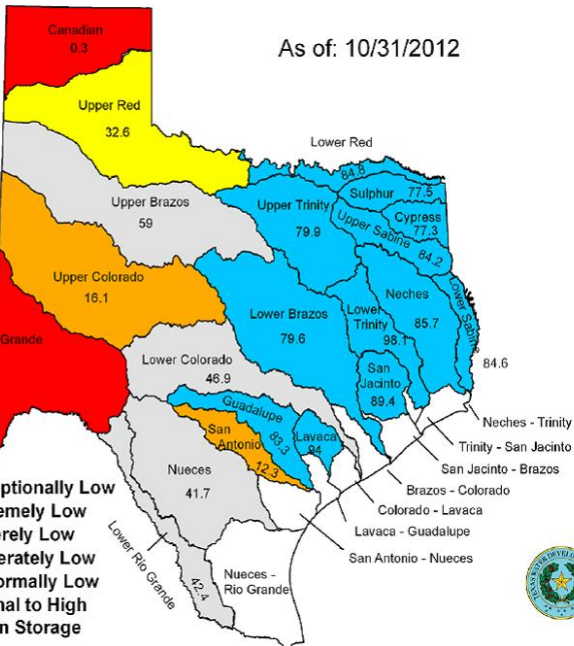
Reservoir Storage Index*

As of: 10/31/2012

Elephant Butte Reservoir,
a source of water for Texas is
5.8% full

Legend

Percent full	
< 10	Exceptionally Low
10 to 20	Extremely Low
20 to 40	Severely Low
40 to 60	Moderately Low
60 to 70	Abnormally Low
> 70	Normal to High
No Conservation Storage	



*Percent of combined conservation storage capacity of 109 major water supply reservoirs by sub-basin (dead pools are excluded)

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TEXAS

Twin Buttes Reservoir

- Pumping out of dead pool into outlet works;
- Grading of equalization canal
- Proposing conduit through dam to access dead pool
- Sporadic M&I delivery and limited irrigation delivery



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TEXAS

Twin Buttes Reservoir

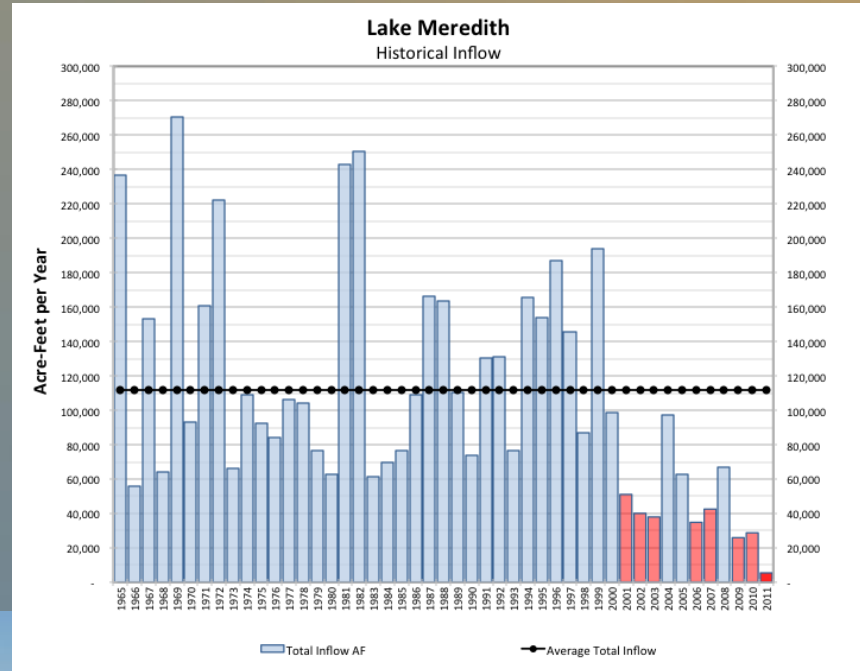


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TEXAS

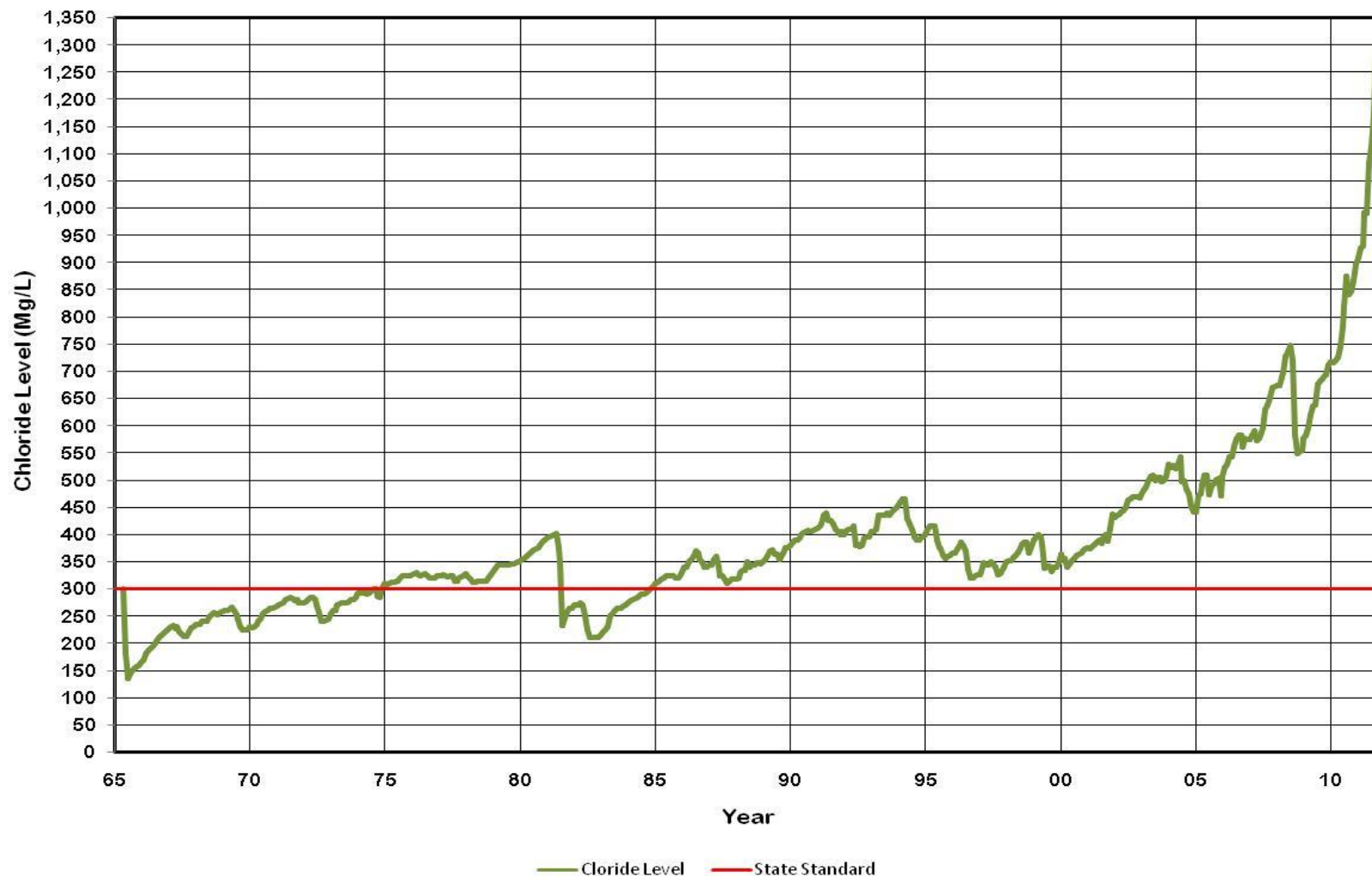
Lake Meredith

- Pumping out of dead pool
- Reservoir completely dry
- Switching to groundwater



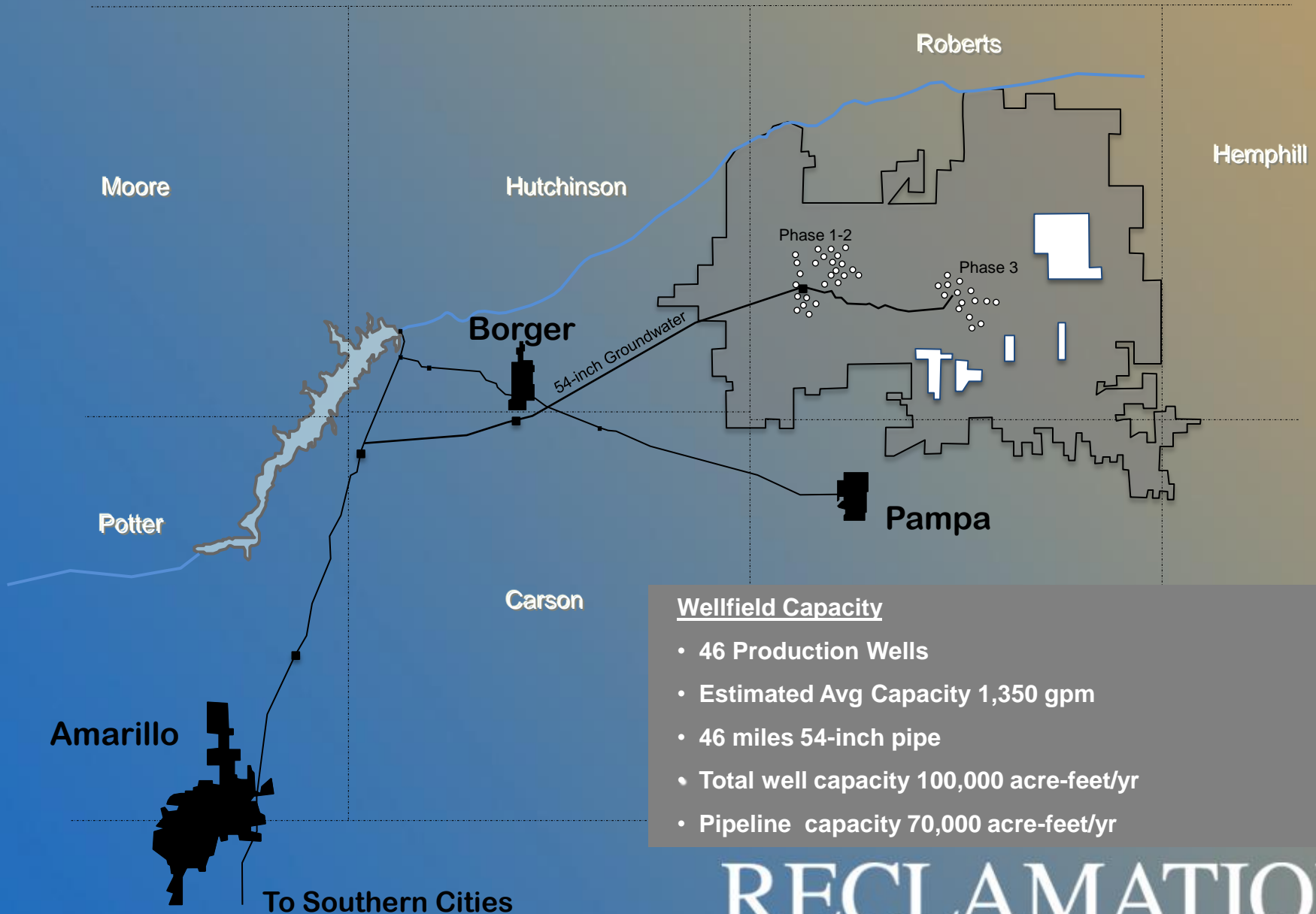
LAKE MEREDITH

Chloride Level



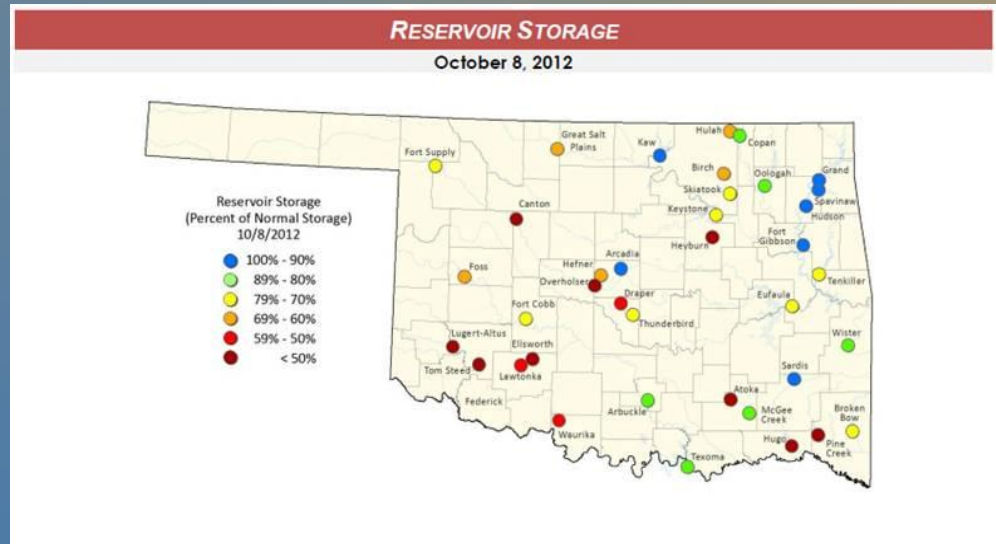
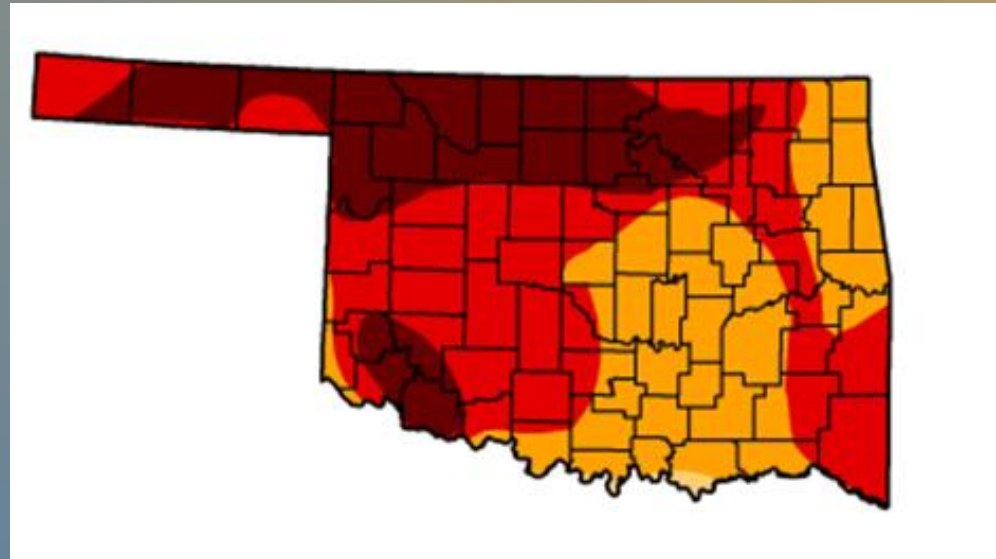
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Current Groundwater System



OKLAHOMA

- Lake Altus – 16%
- Tom Steed – 42%
- Foss – 60%
- Fort Cobb – 72%
- Lake Thunderbird – 62%
- Arbuckle – 87%
- McGee Creek – 81%



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OKLAHOMA

Lake Altus

- Only 500 acres out of 46,000 harvested
- First time since 1946 released ZERO water for irrigation

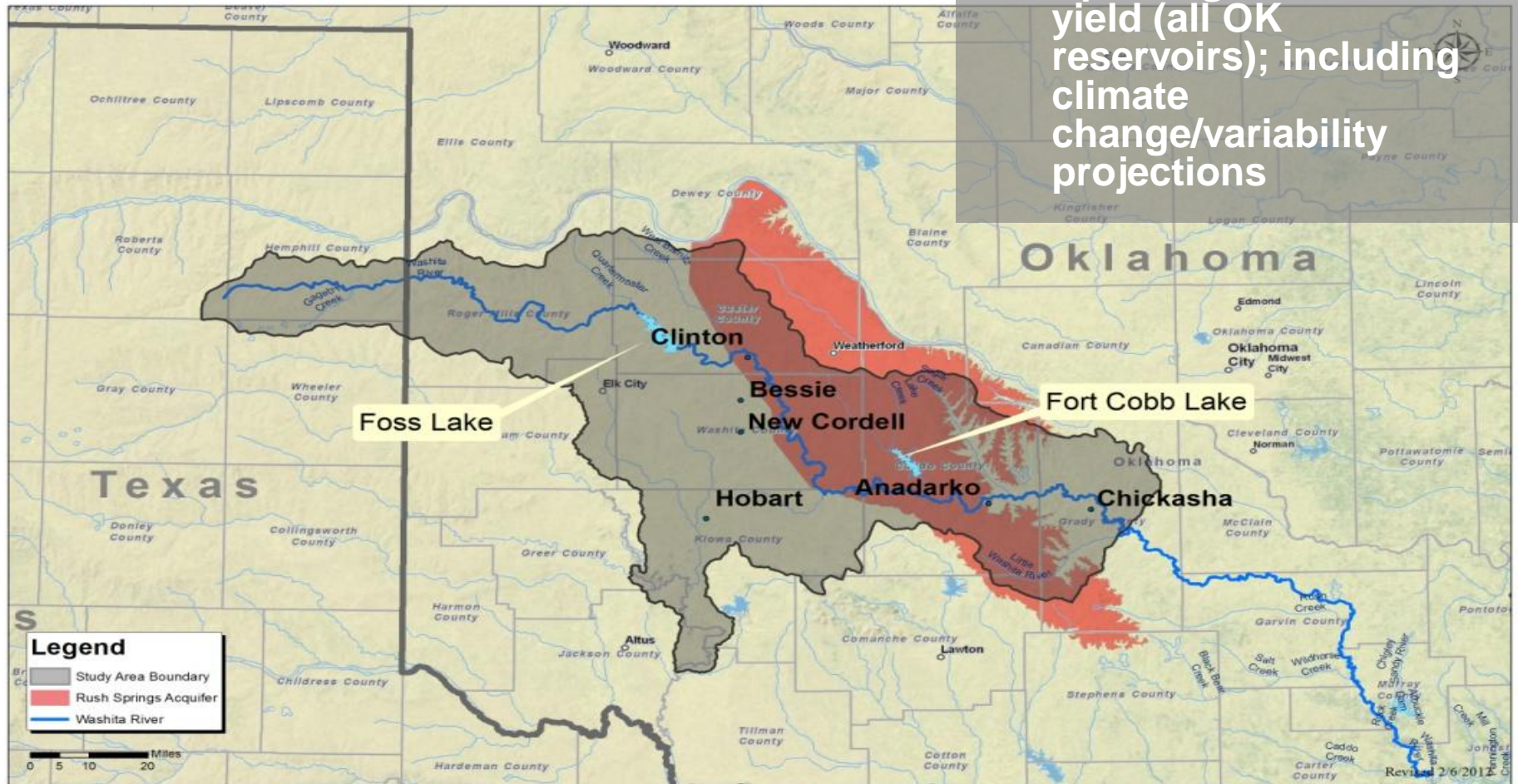


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OKLAHOMA

Foss and Fort Cobb Reservoirs

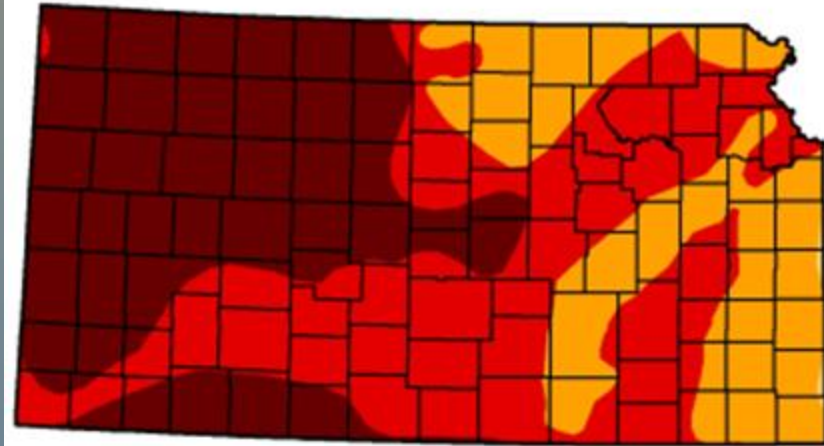
- Foss – exceedance of EDR plant to reach capacity; water quality
- Updating reservoir firm yield (all OK reservoirs); including climate change/variability projections



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KANSAS

- Cheney – 64%



Federal Reservoir Status



Kansas Water Office October 25, 2012

Percent of Conservation Pool



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All Projects

Impacts on recreation

- Significant impacts on recreation
 - Burn bans
 - Access to boat ramps
 - Decreased visitor use
 - Lost revenue

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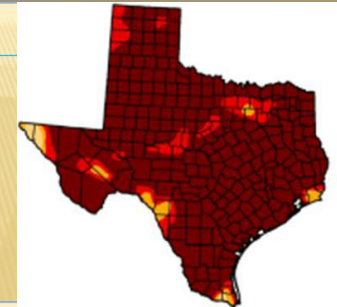
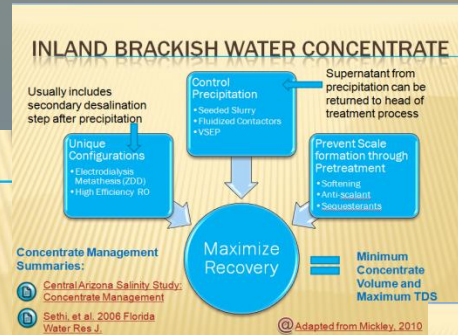
Drought emergency rapid assessment of temporary water supplies

MAIN MENU

- ➡ Preparation
- ➡ Water Capacity Requirements
- ➡ Alternative Sources
- ➡ Treatment Needs
- ➡ Distribution Options
- ➡ Waste Management
- ➡ Permitting requirements
- ➡ Commercial Treatment System Resources
- ➡ Federal Treatment System Resources
- ➡ Mobile Treatment System Operators
- ➡ Potential funding sources
- ➡ Public relations

Arrow Buttons take you to the topic area.

Coming soon to
Oklahoma and
Kansas!



DEEP WELL INJECTION

- ❖ El Paso Deep Well Injection Study
• Southwest Hydrology (March/April 2008)
- Using Oil Fields for the Disposal of Concentrate
• Texas Water Development Board, 2005, DWPR Report #112
- TCEQ Permit Application to Dispose of Waste in a Class I Injection Well

Previous Topic



Next

COMMERCIAL TREATMENT SYSTEM RESOURCES

Water treatment systems designed and built by the private industry have the capabilities to treat broad variations of source water quality.

Commercial and Industrial RO Systems
Applied Membranes, Inc.



- Brackish Surface Water
- Produced Water
- Secondary Wastewater
- Seawater
- Groundwater

Certain mobile and containerized systems are highlighted based on their ability to treat the potential alternative water resources

A number of companies specialize in the design and construction of mobile or containerized water treatment a number of which are included in the Equipment Sources list tab in the [WorkSheet](#) excel file.

Previous Topic



Next Topic

PERMITTING FOR WATER SYSTEMS DURING AN EMERGENCY

- @ 30 TAC Chapter 35 Covers emergency and temporary orders and permits; temporary suspension of amendment of permit conditions.
- @ Subchapter D § 35.101 Emergency Suspension of Permit Conditions Relating to, and Emergency Authority to Make Available Water Set Aside for, Beneficial Inflows to Affected Bays and Estuaries and In-stream Uses.
 - ✓ When drought threatens public health safety, and welfare, state water reserved for beneficial flows can be released for the applicant.
- @ Subchapter E § 35.202 Authorizes emergency rate increases when necessary to ensure provision of continuous and adequate services to utility's customers
- @ On April 11, 2012 Texas Legislature will vote on HB269 (5.03) regarding Suspension or Adjustment of Water Rights During Water Shortage. To be a new section in 30 TAC Chapter 36.

Previous Topic



Next Topic

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CONCLUSIONS

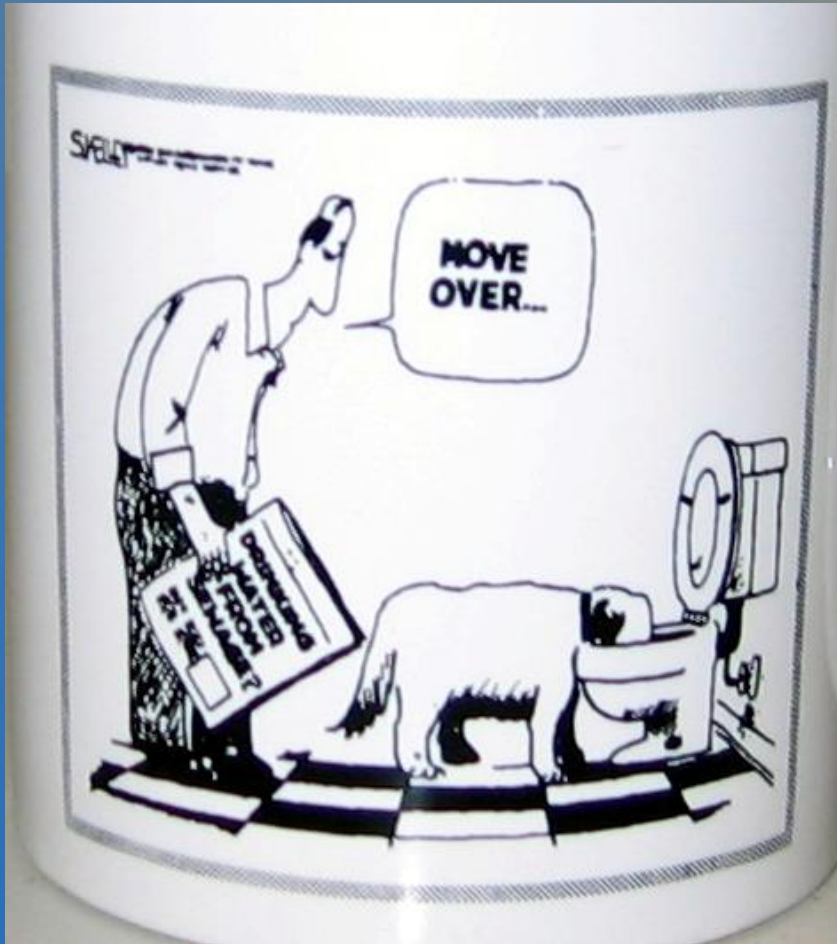
- Reservoirs can be expensive and unreliable
- Diversify water supply portfolio
 - Water conservation
 - Desalination
 - Water recycling and reuse
- Investment in Advanced Water Treatment R&D

Variable Source Desalination Pilot



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QUESTIONS?



“the potable reuse of highly treated reclaimed water without an environmental buffer is worthy of consideration, if adequate protection is engineered within the system.”

National Academy of
Sciences (2012)

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